Fig.1

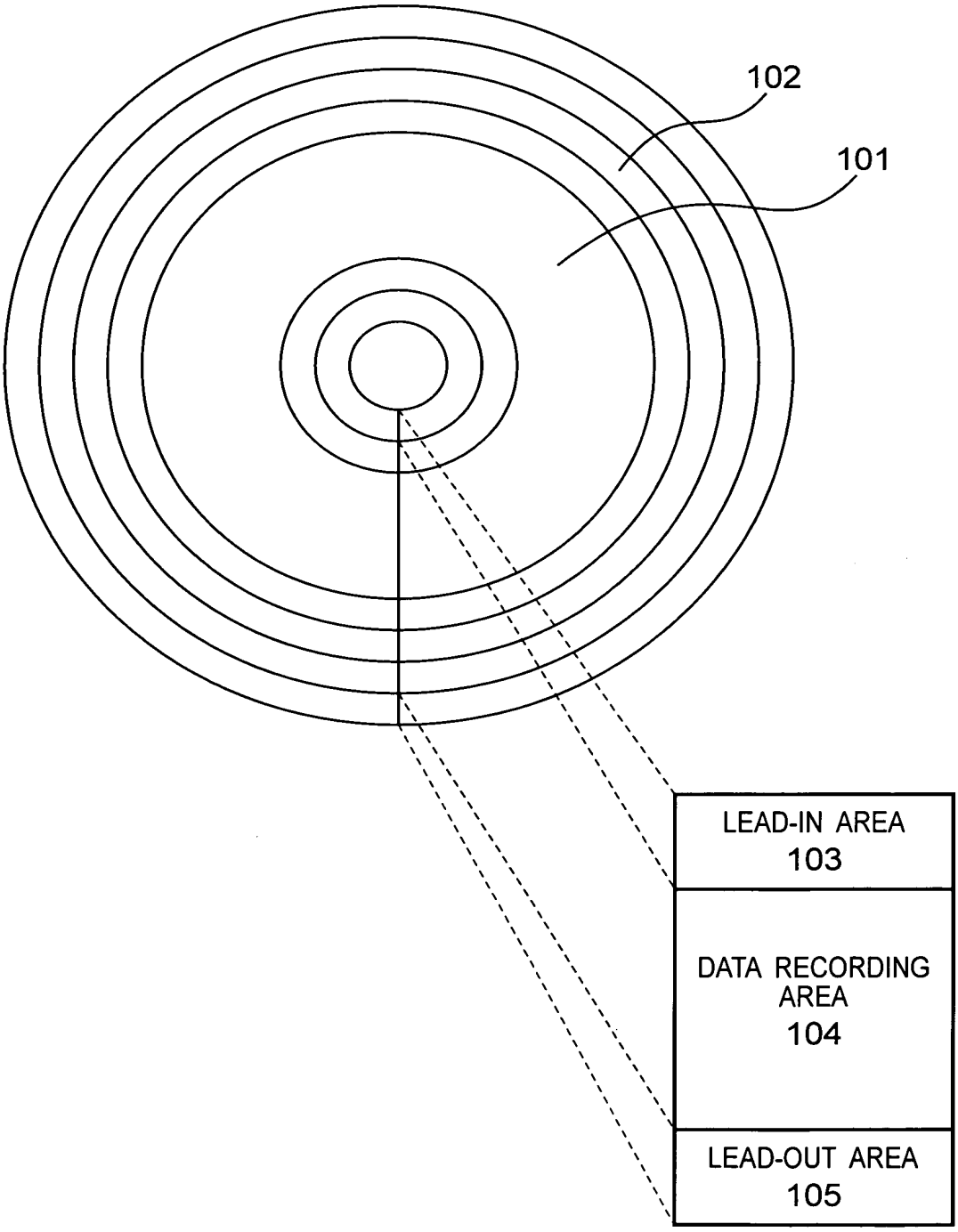

102
101
LEAD-IN AREA
103
DATA RECORDING AREA
104
LEAD-OUT AREA
105

Fig.2

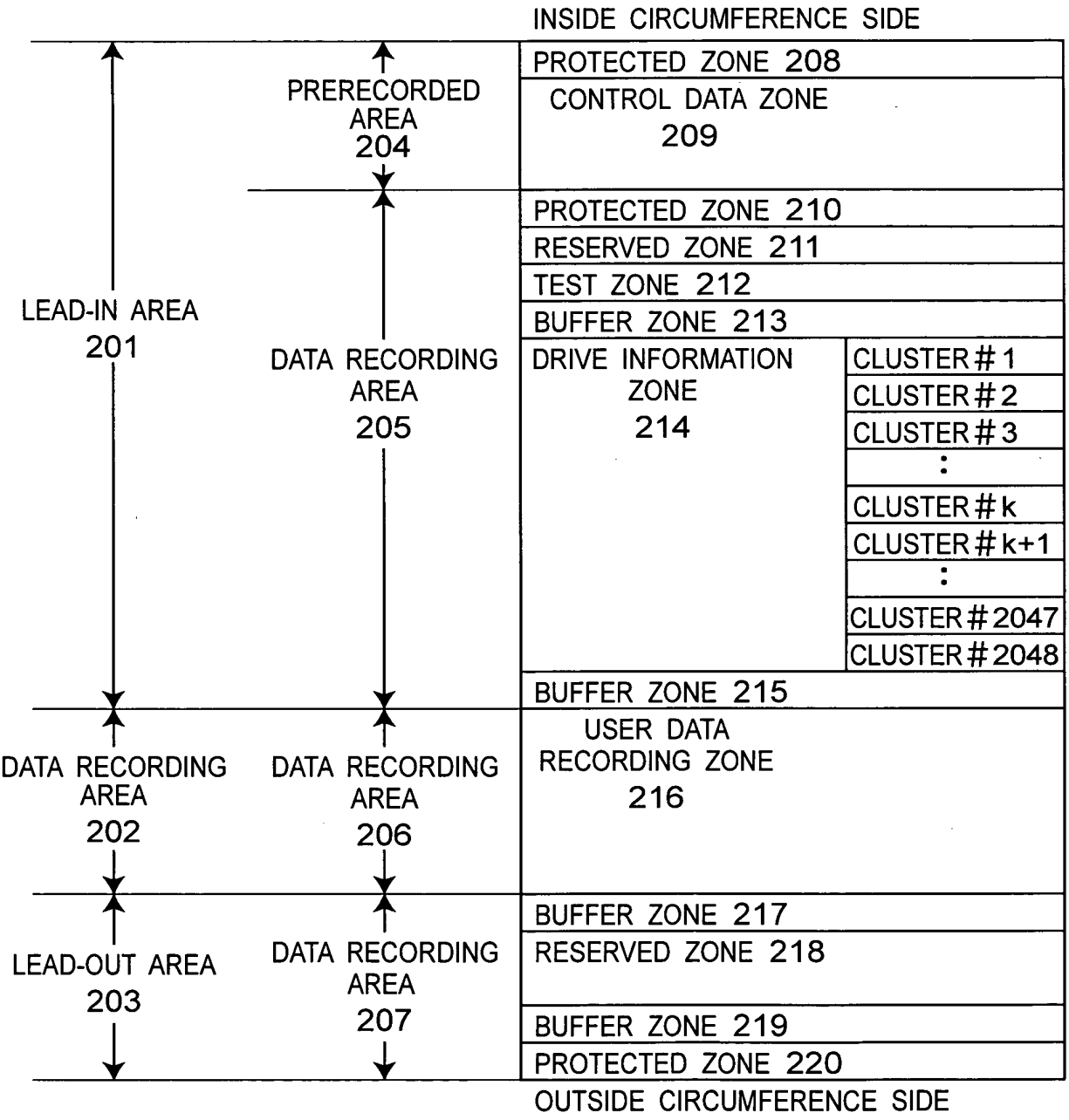

INSIDE CIRCUMFERENCE SIDE
PROTECTED ZONE 208
CONTROL DATA ZONE 209
PROTECTED ZONE 210
RESERVED ZONE 211
TEST ZONE 212
BUFFER ZONE 213
DRIVE INFORMATION ZONE 214
CLUSTER#1
CLUSTER#2
CLUSTER#3
CLUSTER#k
CLUSTER#k+1
CLUSTER#2047
CLUSTER#2048
BUFFER ZONE 215
USER DATA RECORDING ZONE 216
BUFFER ZONE 217
RESERVED ZONE 218
BUFFER ZONE 219
PROTECTED ZONE 220
OUTSIDE CIRCUMFERENCE SIDE
LEAD-IN AREA 201
PRERECORDED AREA 204
DATA RECORDING AREA 205
DATA RECORDING AREA 202
DATA RECORDING AREA 206
LEAD-OUT AREA 203
DATA RECORDING AREA 207

Fig.3

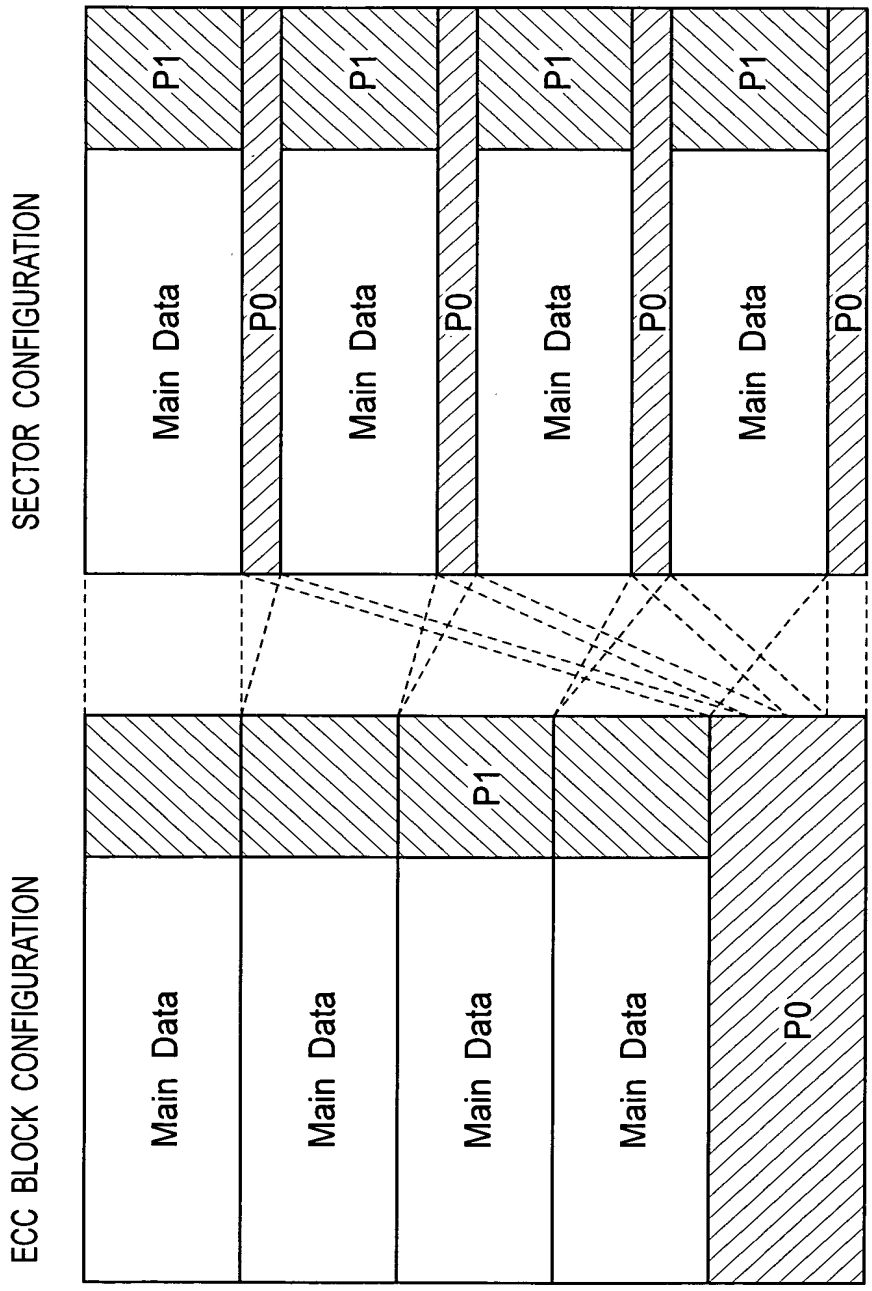

SECTOR CONFIGURATION
Main Data
P1
P0
ECC BLOCK CONFIGURATION
Main Data
P1
P0

Fig.4

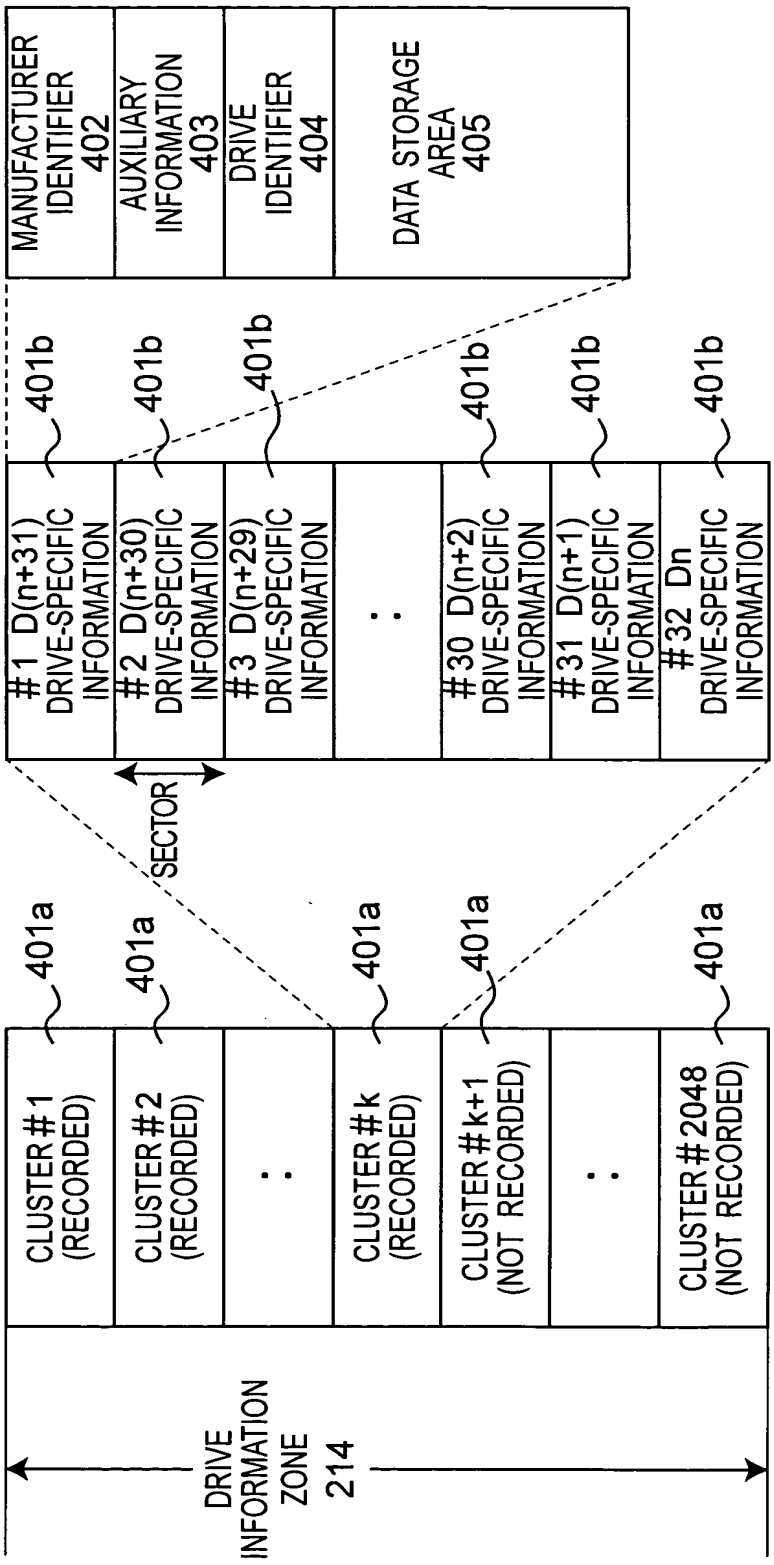

DRIVE INFORMATION ZONE 214
CLUSTER #1 (RECORDED)
CLUSTER #2 (RECORDED)
CLUSTER #k (RECORDED)
CLUSTER #k+1 (NOT RECORDED)
CLUSTER #2048 (NOT RECORDED)
401a
SECTOR
#1 D(n+31) DRIVE-SPECIFIC INFORMATION
#2 D(n+30) DRIVE-SPECIFIC INFORMATION
#3 D(n+29) DRIVE-SPECIFIC INFORMATION
#30 D(n+2) DRIVE-SPECIFIC INFORMATION
#31 D(n+1) DRIVE-SPECIFIC INFORMATION
#32 Dn DRIVE-SPECIFIC INFORMATION
401b
MANUFACTURER IDENTIFIER 402
AUXILIARY INFORMATION 403
DRIVE IDENTIFIER 404
DATA STORAGE AREA 405

Fig.5

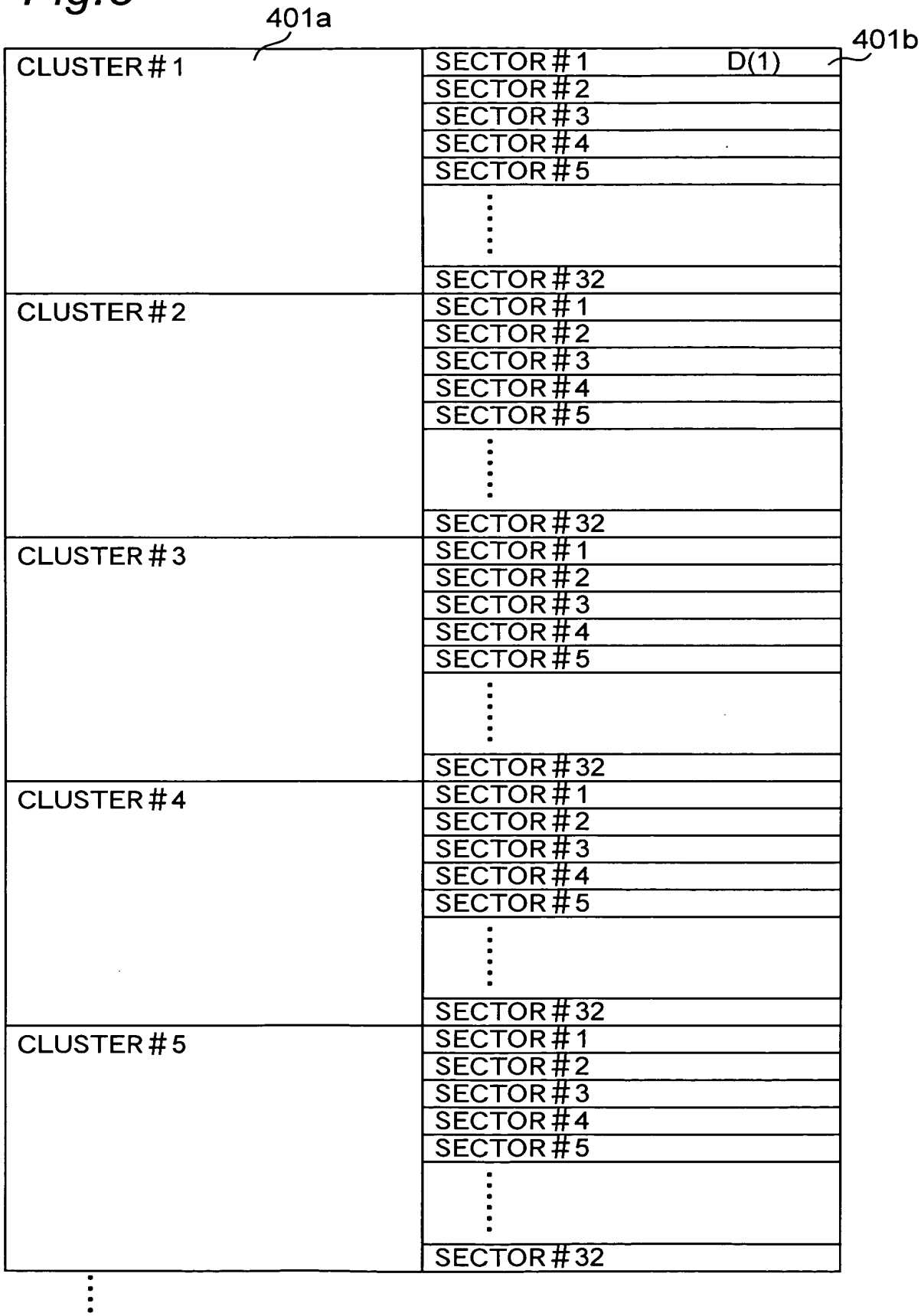

401a
401b
CLUSTER#1
SECTOR#1
D(1)
SECTOR#2
SECTOR#3
SECTOR#4
SECTOR#5
SECTOR#32
CLUSTER#2
SECTOR#1
SECTOR#2
SECTOR#3
SECTOR#4
SECTOR#5
SECTOR#32
CLUSTER#3
SECTOR#1
SECTOR#2
SECTOR#3
SECTOR#4
SECTOR#5
SECTOR#32
CLUSTER#4
SECTOR#1
SECTOR#2
SECTOR#3
SECTOR#4
SECTOR#5
SECTOR#32
CLUSTER#5
SECTOR#1
SECTOR#2
SECTOR#3
SECTOR#4
SECTOR#5
SECTOR#32

Fig.6

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮		

Fig.7

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	D(3)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	

⋮

Fig.8

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	D(3)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	D(4)
	SECTOR#2	D(3)
	SECTOR#3	D(2)
	SECTOR#4	D(1)
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮		

Fig.9

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮	⋮	
CLUSTER#k	SECTOR#1	D(k)=D(n+31)
	SECTOR#2	D(n+30)
	SECTOR#3	D(n+29)
	SECTOR#4	D(n+28)
	SECTOR#5	D(n+27)
	⋮	
	SECTOR#32	D(k-31)=D(n)
CLUSTER#k+1	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮		

Fig.10

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮	⋮	
CLUSTER#k	SECTOR#1	D(n+31)
	SECTOR#2	D(n+30)
	SECTOR#3	D(n+29)
	SECTOR#4	D(n+28)
	SECTOR#5	D(n+27)
	⋮	
	SECTOR#32	D(n)
CLUSTER#k+1	SECTOR#1	D(n+32)
	SECTOR#2	D(n+31)
	SECTOR#3	D(n+30)
	SECTOR#4	D(n+29)
	SECTOR#5	D(n+28)
	⋮	
	SECTOR#32	D(n+1)
⋮		

Fig.11

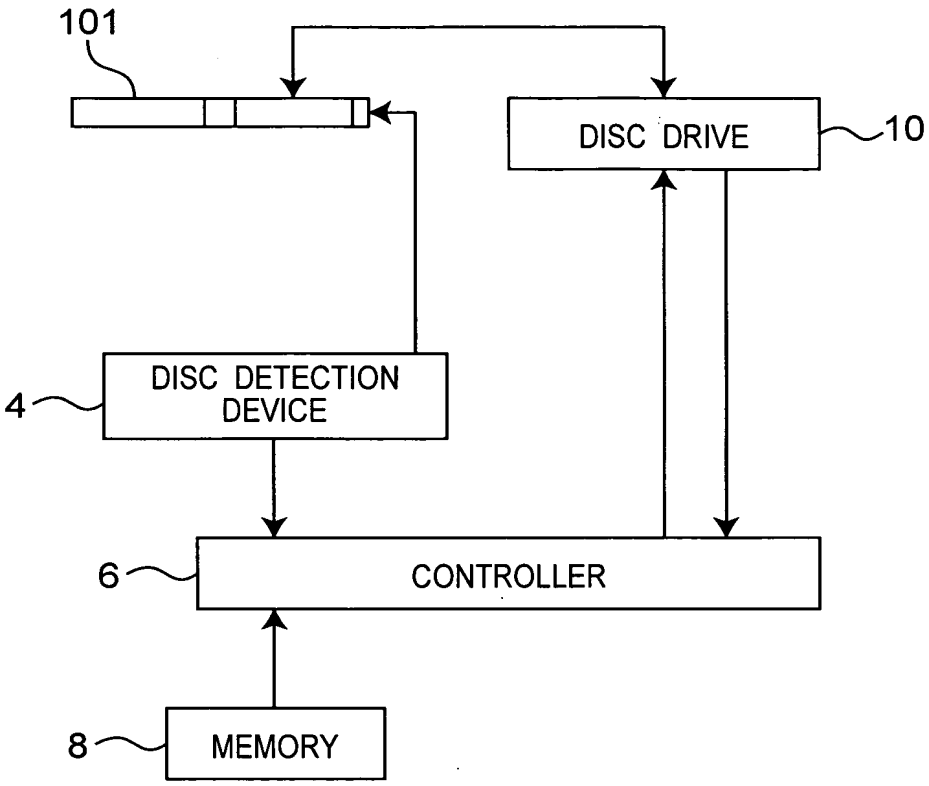

101
DISC DRIVE
10
DISC DETECTION DEVICE
4
6
CONTROLLER
8
MEMORY

Fig.12

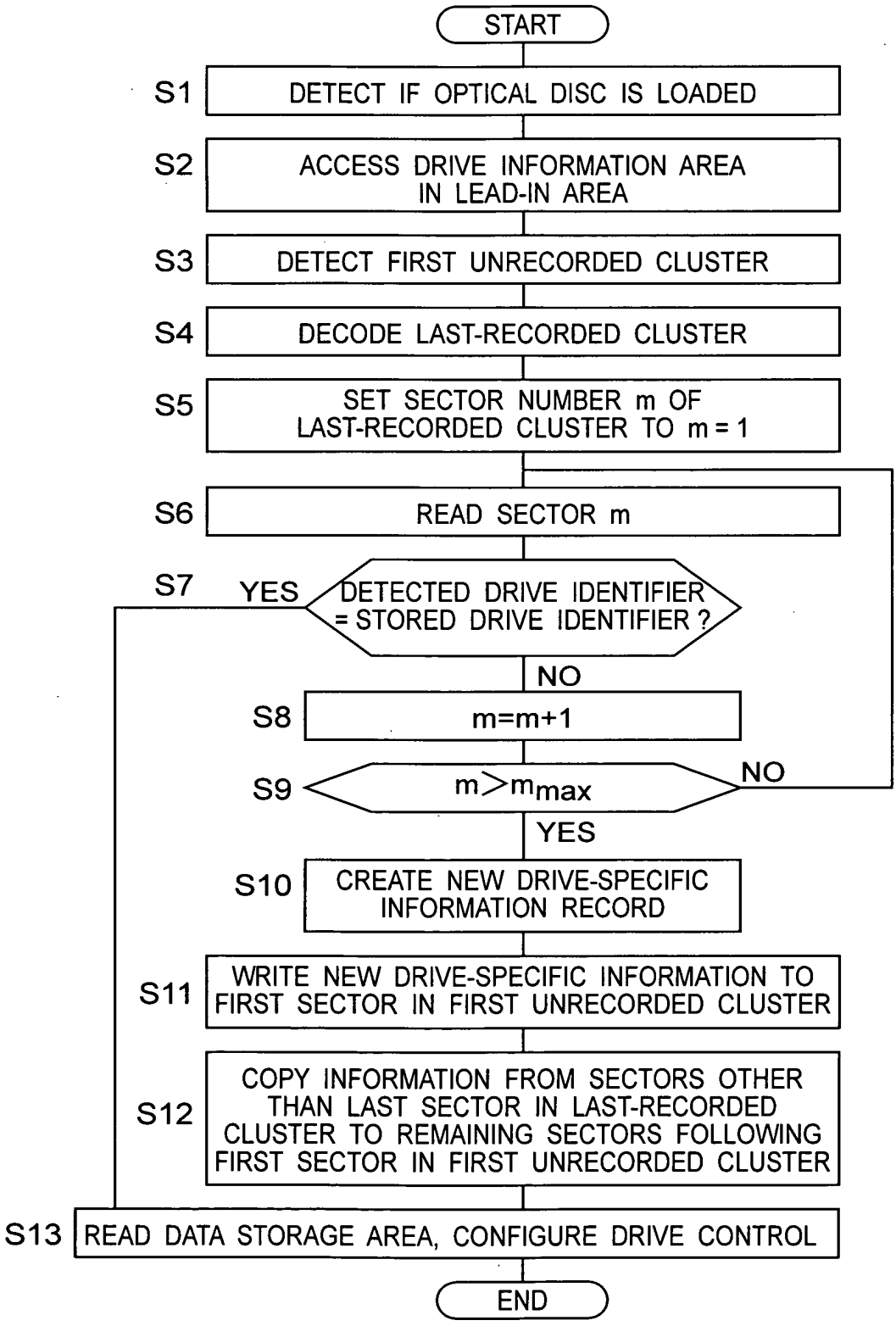

START
S1
DETECT IF OPTICAL DISC IS LOADED
S2
ACCESS DRIVE INFORMATION AREA IN LEAD-IN AREA
S3
DETECT FIRST UNRECORDED CLUSTER
S4
DECODE LAST-RECORDED CLUSTER
S5
SET SECTOR NUMBER m OF LAST-RECORDED CLUSTER TO m = 1
S6
READ SECTOR m
S7
YES
DETECTED DRIVE IDENTIFIER = STORED DRIVE IDENTIFIER ?
NO
S8
m=m+1
S9
m>mmax
NO
YES
S10
CREATE NEW DRIVE-SPECIFIC INFORMATION RECORD
S11
WRITE NEW DRIVE-SPECIFIC INFORMATION TO FIRST SECTOR IN FIRST UNRECORDED CLUSTER
S12
COPY INFORMATION FROM SECTORS OTHER THAN LAST SECTOR IN LAST-RECORDED CLUSTER TO REMAINING SECTORS FOLLOWING FIRST SECTOR IN FIRST UNRECORDED CLUSTER
S13
READ DATA STORAGE AREA, CONFIGURE DRIVE CONTROL
END

Fig.13

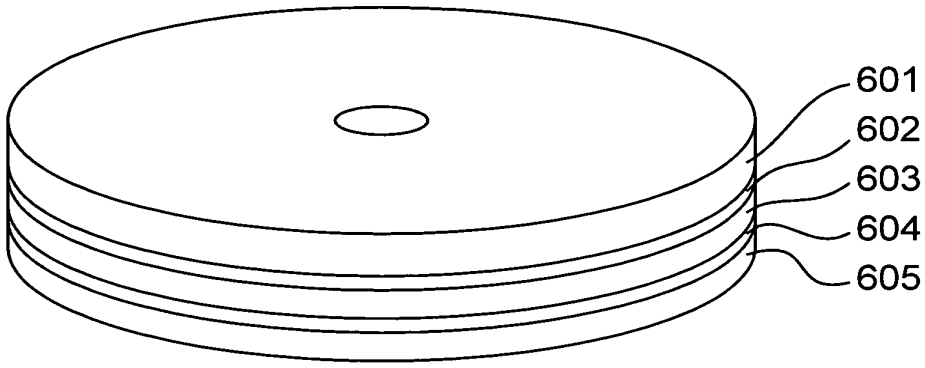
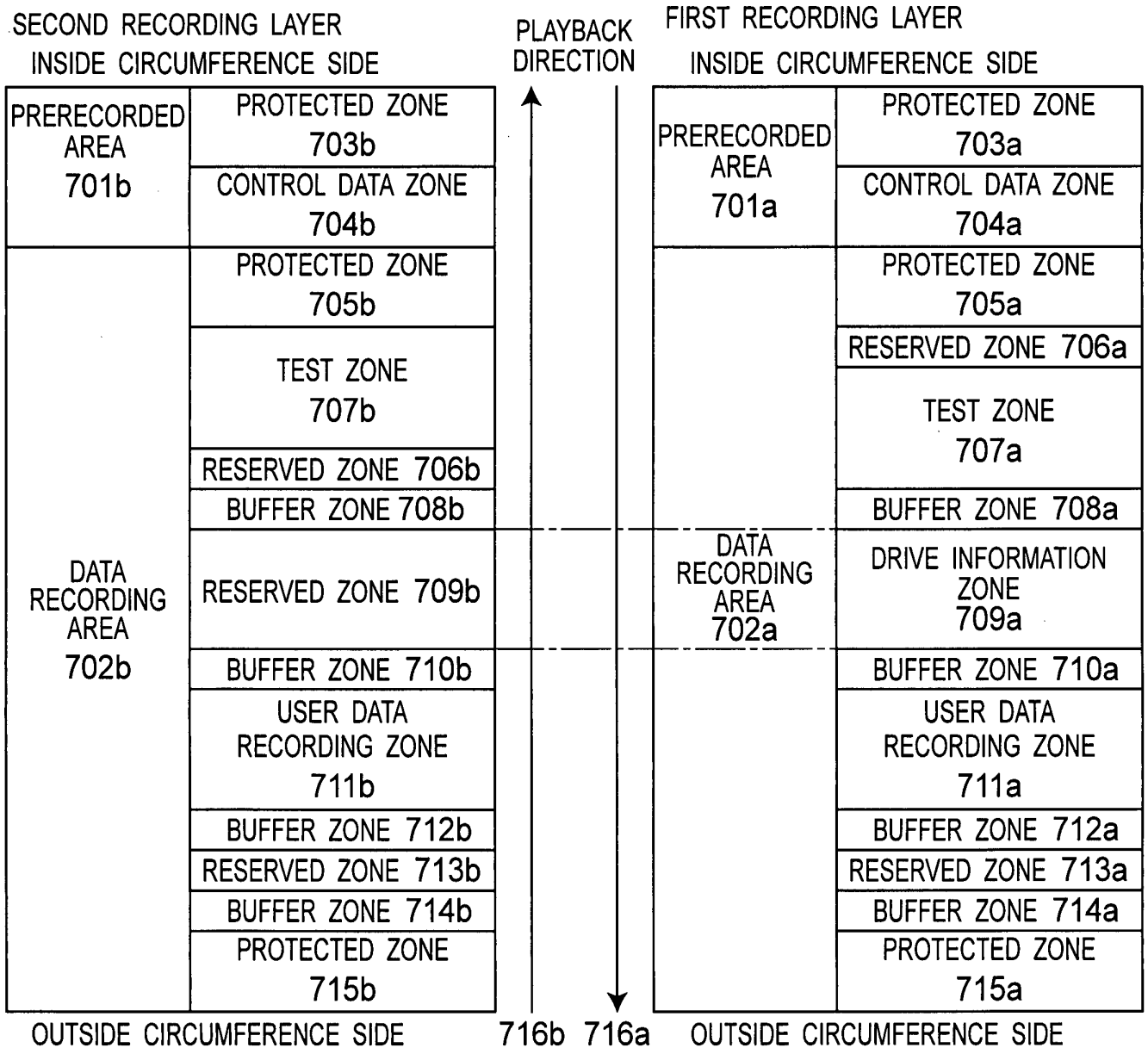
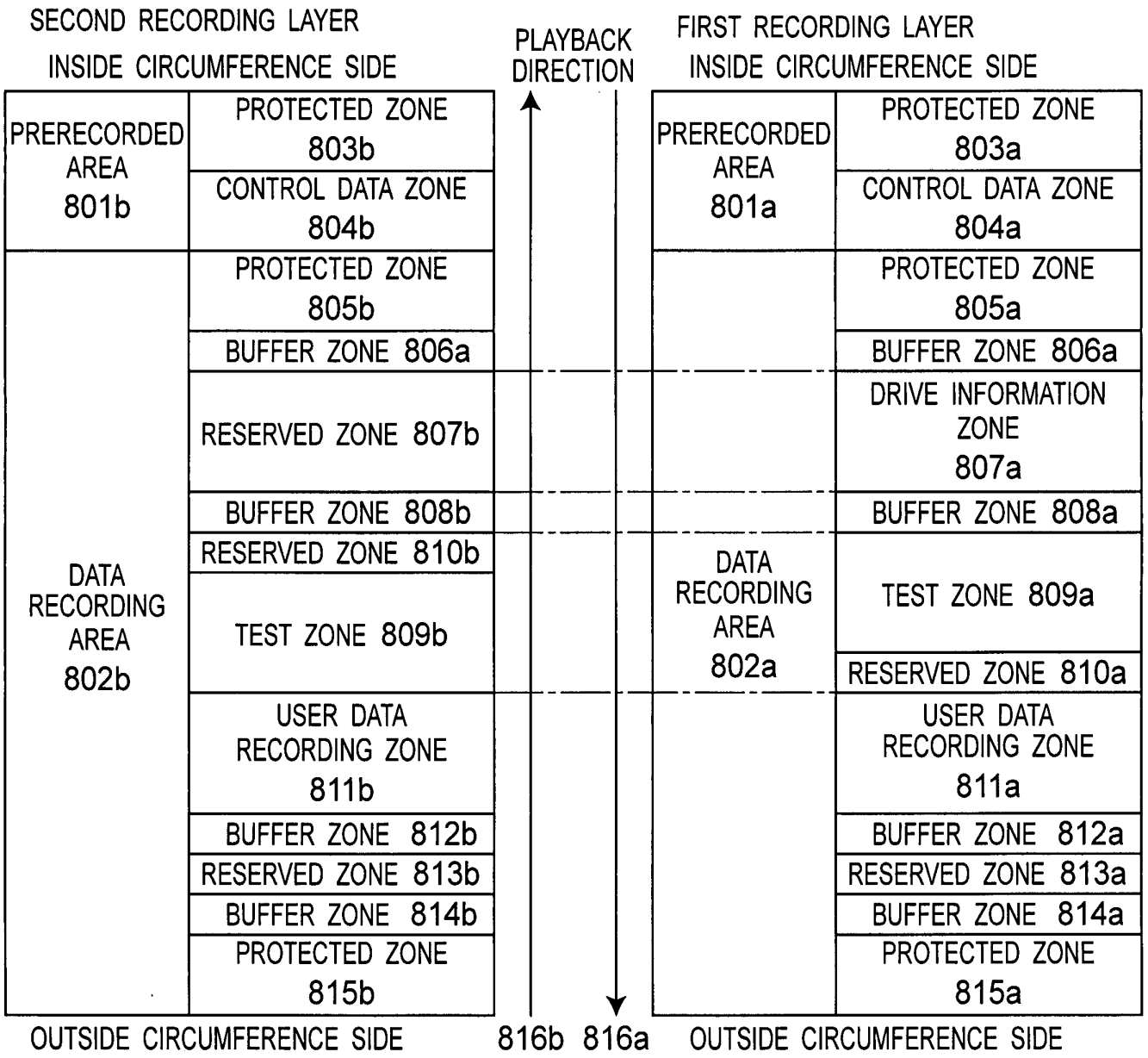


Fig.14



10/519535

Fig.15



10/519535

Fig.16

CLUSTER#1	SECTOR#1	D(1)
	SECTOR#2	S(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	D(2)
	SECTOR#2	D(1)
	SECTOR#3	S(2)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	D(3)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	S(3)
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	D(4)
	SECTOR#2	D(3)
	SECTOR#3	D(2)
	SECTOR#4	D(1)
	SECTOR#5	S(4)
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
⋮		

Fig.17

CLUSTER#1	SECTOR#1	S(1)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	S(2)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	S(3)
	SECTOR#2	D(3)
	SECTOR#3	D(2)
	SECTOR#4	D(1)
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	S(4)
	SECTOR#2	D(4)
	SECTOR#3	D(3)
	SECTOR#4	D(2)
	SECTOR#5	D(1)
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	

⋮

Fig.18

CLUSTER#1	SECTOR#1	S(1)
	SECTOR#2	D(1)
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#2	SECTOR#1	S(2)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#3	SECTOR#1	S(3)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#4	SECTOR#1	S(4)
	SECTOR#2	D(2)
	SECTOR#3	D(1)
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	
CLUSTER#5	SECTOR#1	
	SECTOR#2	
	SECTOR#3	
	SECTOR#4	
	SECTOR#5	
	⋮	
	SECTOR#32	

⋮